

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

KIM, Yongsik
Cheonghwa Building
1571-18 Seocho-dong
Seocho-gu
Seoul 137-073
RÉPUBLIQUE DE CORÉE

| | |
|--|--|
| Date of mailing (day/month/year) 05 January 2001 (05.01.01) | IMPORTANT NOTIFICATION |
| Applicant's or agent's file reference OP/0021/PCT | |
| International application No. PCT/KR00/00273 | International filing date (day/month/year) 29 March 2000 (29.03.00) |

| | | |
|--|---|---|
| 1. The following indications appeared on record concerning: | | |
| <input checked="" type="checkbox"/> the applicant | <input checked="" type="checkbox"/> the inventor | <input type="checkbox"/> the agent <input type="checkbox"/> the common representative |
| Name and Address KIM, Namyoung | State of Nationality KR | State of Residence KR |
| | Telephone No. | |
| | Facsimile No. | |
| | Teleprinter No. | |
| 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: | | |
| <input checked="" type="checkbox"/> the person | <input checked="" type="checkbox"/> the name | <input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence |
| Name and Address MAGICPIA INCORPORATION 12Block 13Lot Namdonggongdan, 622-12 Namchon-dong, Namdong-gu Incheon 405-100 Republic of Korea | State of Nationality KR | State of Residence KR |
| | Telephone No. | |
| | Facsimile No. | |
| | Teleprinter No. | |
| 3. Further observations, if necessary: The applicant/inventor in Box (1) has assigned his rights for all designated States except the US to the new applicant in Box (2) and remains recorded as applicant/inventor for the US only. | | |
| 4. A copy of this notification has been sent to: | | |
| <input checked="" type="checkbox"/> the receiving Office | <input type="checkbox"/> the designated Offices concerned | |
| <input type="checkbox"/> the International Searching Authority | <input checked="" type="checkbox"/> the elected Offices concerned | |
| <input checked="" type="checkbox"/> the International Preliminary Examining Authority | <input type="checkbox"/> other: | |

| | |
|---|---|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer Ellen Moyse Telephone No.: (41-22) 338.83.38 |
|---|---|

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PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

Date of mailing (day/month/year)

12 December 2000 (12.12.00)

International application No.

PCT/KR00/00273

Applicant's or agent's file reference

OP/0021/PCT

International filing date (day/month/year)

29 March 2000 (29.03.00)

Priority date (day/month/year)

29 March 1999 (29.03.99)

Applicant

KIM, Namyoung

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

27 October 2000 (27.10.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Olivia TEFY

Telephone No.: (41-22) 338.83.38

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AGENT COOPERATION TREE

PCT

NOTIFICATION RELATING TO PRIORITY CLAIM

(PCT Rules 26bis.1 and 26bis.2 and
Administrative Instructions, Sections 402 and 409)

From the INTERNATIONAL BUREAU

To:

KIM, Yongsik
 Jordan Y. Kim Patents & Trademarks
 Jaekwang Building, 6th floor
 1002-15 Bangbae-dong
 Seocho-ku
 Seoul 137-060
 RÉPUBLIQUE DE CORÉE

| | |
|---|--|
| Date of mailing (day/month/year) 05 July 2000 (05.07.00) | |
| Applicant's or agent's file reference OP/0021/PCT | IMPORTANT NOTIFICATION |
| International application No. PCT/KR00/00273 | International filing date (day/month/year) 29 March 2000 (29.03.00) |
| Applicant KIM, Namyoung | |

The applicant is hereby notified of the following in respect of the priority claim(s) made in the international application.

1. ☒ **Correction of priority claim.** In accordance with the applicant's notice received on: 01 June 2000 (01.06.00), the following priority claim has been corrected to read as follows:
 KR 29 March 1999 (29.03.99) 1999/10868
☐ even though the indication of the number of the earlier application is missing.
☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
2. ☐ **Addition of priority claim.** In accordance with the applicant's notice received on: , the following priority claim has been added:
☐ even though the indication of the number of the earlier application is missing.
☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
3. ☐ As a result of the correction and/or addition of (a) priority claim(s) under items 1 and/or 2, the (earliest) priority date is:
4. ☐ **Priority claim considered not to have been made.**
☐ The applicant failed to respond to the Invitation under Rule 26bis.2(a) (Form PCT/IB/316) within the prescribed time limit.
☐ The applicant's notice was received after the expiration of the prescribed time limit under Rule 26bis.1(a).
☐ The applicant's notice failed to correct the priority claim so as to comply with the requirements of Rule 4.10.
 The applicant may, before the technical preparations for international publication have been completed and subject to the payment of a fee, request the International Bureau to publish, together with the international application, information concerning the priority claim. See Rule 26bis.2(c) and the PCT Applicant's Guide, Volume I, Annex B2(1B).
5. ☐ In case where multiple priorities have been claimed, the above item(s) relate to the following priority claim(s):
6. A copy of this notification has been sent to the receiving Office and
☒ to the International Searching Authority (where the international search report has not yet been issued).
☒ the designated Offices (which have already been notified of the receipt of the record copy).

| | |
|--|--|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35 | Authorized officer I. Britel Telephone No. (41-22) 338.83.38 |
|--|--|

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REC'D 18 JUL 2001

WIPO

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|--|---|--|
| Applicant's or agent's file reference OP/0021/PCT | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/KR00/00273 | International filing date (day/month/year) 29 MARCH 2000 (29.03.2000) | Priority date (day/month/year) 29 MARCH 1999 (29.03.1999) |
| International Patent Classification (IPC) or national classification and IPC IPC7 B65D 17/00 | | |
| Applicant KIM, NamYoung et al | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| | |
|--|--|
| Date of submission of the demand 27 OCTOBER 2000 (27.10.2000) | Date of completion of this report 11 JULY 2001 (11.07.2001) |
| Name and mailing address of the IPEA/KR Korean Intellectual Property Office Government Complex-Daejeon, Dunsan-dong, Seo-gu, Daejeon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140 | Authorized officer KIM, Myung Gon Telephone No. 82-42-481-5417 |

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR00/00273

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
pages 1-9, 14 , as originally filed
pages None , filed with the demand
pages None , filed with the letter of _____
- ☒ the claims:
pages 10-13 , as originally filed
pages None , as amended (together with any statement) under Article 19
pages None , filed with the demand
pages None , filed with the letter of _____
- ☒ the drawings:
pages 1/8-8/8 , as originally filed
pages None , filed with the demand
pages None , filed with the letter of _____
- ☒ the sequence listing part of the description:
pages None , as originally filed
pages None , filed with the demand
pages None , filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language english which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages None
- ☒ the claims, Nos. None
- ☒ the drawings, sheet None

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

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INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR00/00273

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|------|-----|
| Novelty (N) | Claims | 1-17 | YES |
| | Claims | None | NO |
| Inventive step (IS) | Claims | 1-17 | YES |
| | Claims | None | NO |
| Industrial applicability (IA) | Claims | 1-17 | YES |
| | Claims | None | NO |

2. Citations and explanations (Rule 70.7)

Documents of prior art cited in the International Search Report

D1 : US 4319692 A (ROY L. GUNDLACH) 16 MAR 1982
D2 : EP 649793 A1 (HOOGOVS GROEP B. V) 26 APR 1995
D3 : JP 06219447 A (OKAMOTO SUSUMU) 9 AUG 1994
D4 : US 4289250 A (THOMAS F. JORDAN) 15 SEP 1981
D5 : JP 11043146 A1(FUJI AIDETSUKU, KK) 16 FEB 1999
D6 : US 4465203 A (MICHAL P. LAMBERT) 14 AUG 1984

Novelty and Inventive Step

Claims 1-17 meet the criteria set out in PCT Article 33(2)-(3), because the prior art (D1-D6) does not teach or fairly suggest that a can having a thimble portion adjacent to an arc-shaped notch portion, formed on the can's upper-surface and having a wrinkled portion that can be bent in a wave shape after the notch portion has been destroyed.

Industrial Applicability

The invention of claims 1-17 is industrially applicable in an efficient system of production.

Result

According to the arguments stated above, the invention referred to in claims 1-17 fulfills the requirements of Novelty, Inventive Step and Industrial Applicability.

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PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|---|---|
| Applicant's or agent's file reference OP/0021/PCT | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/KR00/00273 | International filing date (<i>day/month/year</i>) 29 MARCH 2000 (29.03.2000) | (Earliest) Priority Date (<i>day/month/year</i>) 29 MARCH 1999 (29.03.1999) |
| Applicant KIM, NamYoung et al | | |

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (See Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawing** to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR00/00273

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to part of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Search Authority found multiple inventions in this international application, as follows:

Claim 1-9 : A can comprising a thimble portion and wrinkled portion

Claim 10-12 : A can comprising a protruding tab and wrinkled portion

Claim 13-14 : A can comprising a pair of protruding tabs and boundary notch portion

Claim 15-16 : A can comprising protruding tab disposed at the center of a circular beading portion and central notch portion and circular notch portion

Claim 17: A can comprising a pressed tab and circular notch portion

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be established without effort justifying an additional fee, this Authority did not invite payment of any addition fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1 - 9

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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A. CLASSIFICATION OF SUBJECT MATTER**IPC7 B65D 17/00**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ESPACENET "can", "finger", "thumb", "score-line", "tab", "thimble"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| A | US 4319692 A (ROY L. GUNDLACH) 16 MAR 1982 see the whole document | 1 - 9 |
| A | EP 649793 A1 (HOOGO VENS GROEP B.V) 26 APR 1995 see the whole document | 1 - 9 |
| A | JP 06219447 A (OKAMOTO SUSUMU) 9 AUG 1994 see the whole document | 1 - 9 |
| A | US 4289250 A (THOMAS F. JORDAN) 15 SEP 1981 see the whole document | 1 - 9 |
| A | JP 11043146 A1 (FUJI AIDETSUKU, KK) 16 FEB 1999 see the whole document | 1 - 9 |
| A | US 4465203 A (MICHAL P. LAMBERT) 14 AUG 1984 see the whole document | 1 - 9 |

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

09 OCTOBER 2000 (09.10.2000)

Date of mailing of the international search report

10 OCTOBER 2000 (10.10.2000)

Name and mailing address of the ISA/KR

Korean Industrial Property Office
Government Complex-Taejon, Dunsan-dong, So-ku, Taejon
Metropolitan City 302-701, Republic of Korea
Facsimile No. 82-42-472-7140

Authorized officer

LIM, Ho Soon

Telephone No. 82-42-481-5462



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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR00/00273

| Patent document cited in search report | Publication date | Patent family member(s). | Publication date |
|---|---------------------|--------------------------------|--------------------------|
| US-A-4319692 | 16-03-1982 | None | |
| EP-A1-649793 | 26-04-1995 | US-A- 5671860 NL-A- 9301812 | 30-09-1997 16-05-1995 |
| JP-A-06219447 | 09-08-1994 | None | |
| US-A-4289250 | 15-09-1981 | AU-A1- 6934281 | 05-11-1981 |
| JP-A1-11043146 | 16-02-1999 | None | |
| US-A-4465203 | 14 -08-1984 | CA-A-1243265 | 18-10-1988 |

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



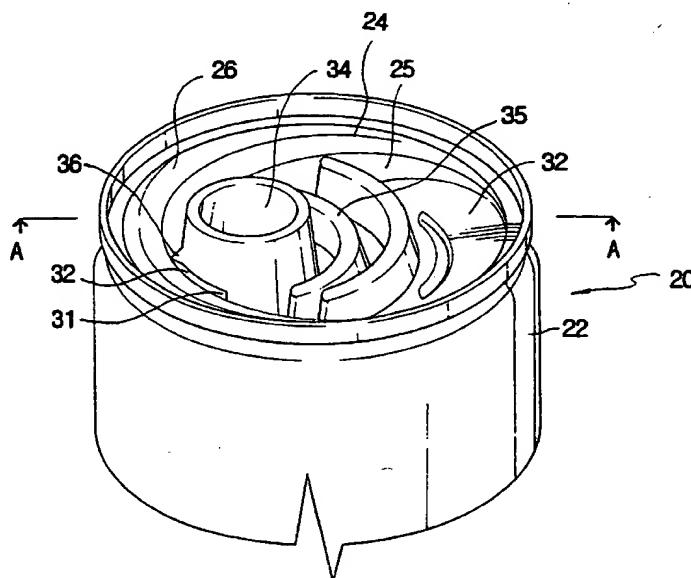
(43) International Publication Date
5 October 2000 (05.10.2000)

PCT

(10) International Publication Number
WO 00/58158 A3

- (51) International Patent Classification: B65D 17/00 (74) Agent: KIM, Yongsik; Cheonghwa Building, 1571-18 Seocho-dong, Seocho-gu, Seoul 137-073 (KR).
- (21) International Application Number: PCT/KR00/00273 (81) Designated States (*national*): CN, JP, KR, US.
- (22) International Filing Date: 29 March 2000 (29.03.2000) (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- (25) Filing Language: Korean
- (26) Publication Language: English Published: — With international search report.
- (30) Priority Data: 1999/10868 29 March 1999 (29.03.1999) KR (88) Date of publication of the international search report: 19 April 2001
- (71) Applicant and
(72) Inventor: KIM, Namyong [KR/KR]; 516-1308 Gayang 5 dangi Apt., Kangseo-ku, Seoul 157-202 (KR).
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: CAN



(57) Abstract: A can (20) includes a main body (22) having a predetermined cavity (21) for storing beverage, a seal member (30) sectioned by an arch shaped notch portion (24) formed on an upper surface of the main body and having first and second inclined portions (32, 33) with respect to a support wrinkled portion (31) formed with a step, a thimble portion (34) formed at the seal member such that the support wrinkled portion adjacent to the notch portion can be vertically disposed at a central portion thereof, a wrinkled portion (35) formed at the second inclined portion and bent in a wave shape when the notch portion is destroyed, and an initial destruction portion (36) formed at a portion adjacent to the thimble portion and the notch portion for initially destroying the notch portion when the thimble portion is bent.

WO 00/58158 A3

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00273

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 B65D 17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ESPACENET "can", "finger", "thumb", "score-line", "tab", "thimble"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| A | US 4319692 A (ROY L. GUNDLACH) 16 MAR 1982 see the whole document | 1 - 9 |
| A | EP 649793 A1 (HOOGO VENS GROEP B.V) 26 APR 1995 see the whole document | 1 - 9 |
| A | JP 06219447 A (OKAMOTO SUSUMU) 9 AUG 1994 see the whole document | 1 - 9 |
| A | US 4289250 A (THOMAS F. JORDAN) 15 SEP 1981 see the whole document | 1 - 9 |
| A | JP 11043146 A1 (FUJI AIDETSUKU, KK) 16 FEB 1999 see the whole document | 1 - 9 |
| A | US 4465203 A (MICHAL P. LAMBERT) 14 AUG 1984 see the whole document | 1 - 9 |

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search

09 OCTOBER 2000 (09.10.2000)

Date of mailing of the international search report

10 OCTOBER 2000 (10.10.2000)

Name and mailing address of the ISA/KR

Korean Industrial Property Office
 Government Complex-Taejon, Dunsan-dong, So-ku, Taejon
 Metropolitan City 302-701, Republic of Korea
 Facsimile No. 82-42-472-7140

Authorized officer

LIM, Ho Soon

Telephone No. 82-42-481-5462



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR00/00273

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to part of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Search Authority found multiple inventions in this international application, as follows:

Claim 1-9 : A can comprising a thimble portion and wrinkled portion

Claim 10-12 : A can comprising a protruding tab and wrinkled portion

Claim 13-14 : A can comprising a pair of protruding tabs and boundary notch portion

Claim 15-16 : A can comprising protruding tab disposed at the center of a circular beading portion and central notch portion
and circular notch portion

Claim 17: A can comprising a pressed tab and circular notch portion

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
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1 - 9

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- ☐ The additional search fees were accompanied by the applicant's protest.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR00/00273

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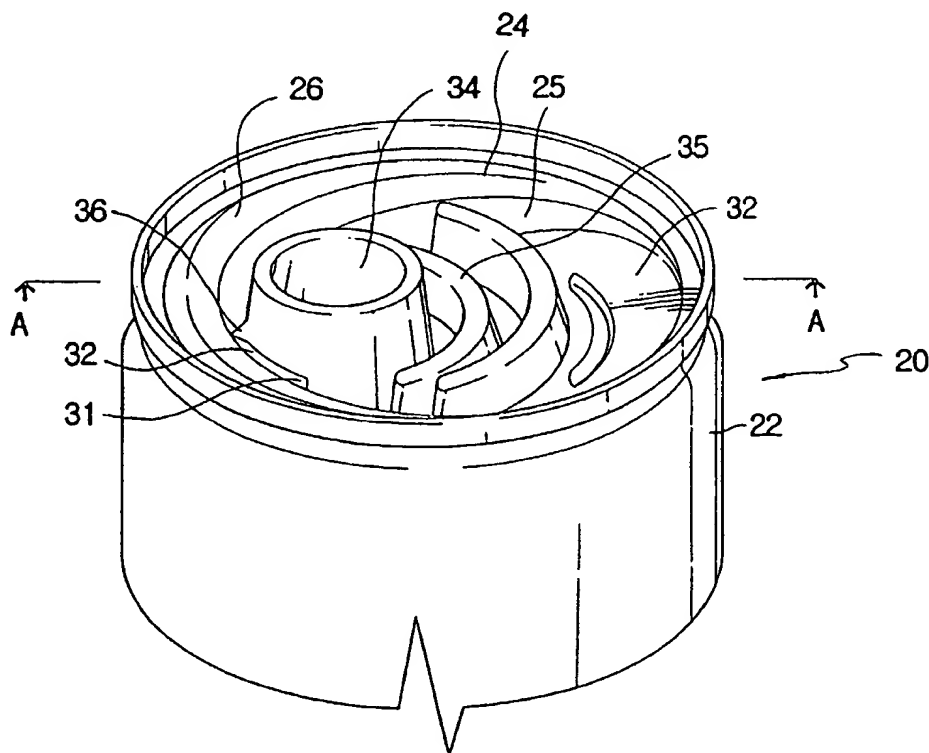
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(54) Title: CAN

(57) Abstract

A can (20) includes a main body (22) having a predetermined cavity (21) for storing beverage, a seal member (30) sectioned by an arch shaped notch portion (24) formed on an upper surface of the main body and having first and second inclined portions (32, 33) with respect to a support wrinkled portion (31) formed with a step, a thimble portion (34) formed at the seal member such that the support wrinkled portion adjacent to the notch portion can be vertically disposed at a central portion thereof, a wrinkled portion (35) formed at the second inclined portion and bent in a wave shape when the notch portion is destroyed, and an initial destruction portion (36) formed at a portion adjacent to the thimble portion and the notch portion for initially destroying the notch portion when the thimble portion is bent.



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CAN

Technical Field

The present invention relates to a beverage containing can for
5 distribution, and more particularly, to a can having an improved opening
structure of an outlet through which the beverage flows out.

Background Art

Liquor, health beverage, and soda beverage are sold in various types
10 of containers. Most containers include a cavity in which liquor or beverage
is stored, a main body where an inlet of the cavity is provided, and a seal
member for opening/closing the inlet of the main body.

FIG. 1 shows a can which is an example of the containers. As shown
in the drawing, a can 10 includes a main body 12 formed of a material such as
15 aluminum and where a cavity is provided, a seal member 14 sectioned by a
notch portion 13 on the upper surface of the main body 12 and for sealing an
inlet of the cavity 11, and a ring opener 15 riveted or welded at one side of the
seal member 14 and for separating the seal member 14 from the main body
12 by destroying a part of the notch portion 13 when the opener 15 pivots.

20 In the can 10 having the above structure, since the opener 15 is in
close contact with the upper surface of the main body 12, and since the notch
portion 13 connecting the seal member 14 and the main body 12 is destroyed
at the initial pivot of the opener 15, a great initial force for pivoting the opener
15 is needed. Thus, pivoting the opener 15 is difficult for aged or weak
25 persons, or kids. Also, women having long finger nails may have her nails
damaged while pivoting the opener 15.

Also, the seal member 14 sectioned by the notch portion 13 occupies
a small area in the can. Thus, as the opener 15 and the seal member 14 are
completely separated from the main body 12 and lost, valuable resources
30 cannot be recycled.

Disclosure of the Invention

To solve the above problems, it is an object of the present invention to provide a can having an improved structure so that the seal member can be detached from the main body by a relatively less force and the seal member is not completely separated from the main body, so that resources can be recycled.

It is another object of the present invention to provide a can having a simple structure so that productivity in manufacturing can be improved.

Accordingly, to achieve the above objects, there is provided a can comprising a main body having an inside cavity, a seal member sectioned by an arc shaped notch portion formed on an upper surface of the main body, a thimble portion formed at the seal member adjacent to the notch portion, and a wrinkled portion formed at the seal member to be bent in a wave shape when the notch portion of the main body is destroyed.

It is preferred in the present invention that the can further comprises an initial destruction portion formed near the thimble portion for initially destroying the notch portion when the thimble portion is bent, that the initial destruction portion is formed by making the outer circumferential surface of the thimble portion sharply bent toward the notch portion at the boundary portion between the thimble portion and the seal member, and that the notch portion adjacent to the initial destruction portion is formed to be deeper than the nearby notch portion.

Also, to achieve the above objects, there is provided a can comprising a main body having a predetermined cavity for storing beverage, a seal member sectioned by an arch shaped notch portion formed on an upper surface of the main body and having first and second inclined portions with respect to a support wrinkled portion formed with a step, a thimble portion formed at the seal member such that the support wrinkled portion adjacent to the notch portion can be vertically disposed at a central portion thereof, a wrinkled portion formed at the second inclined portion and bent in a wave shape when the notch portion is destroyed, and an initial destruction portion

formed at a portion adjacent to the thimble portion and the notch portion for initially destroying the notch portion when the thimble portion is bent.

It is preferred in the present invention that a skirt portion is formed between an edge of the first and second inclined portions and the main body, and that a beverage flow guiding portion is formed around the notch portion on the upper surface of the main body.

Also, to achieve the above objects, there is provided a can comprising a main body having a cavity for storing beverage, a seal member sectioned by an arc shaped notch portion formed on an upper surface of the main body, a protruding tab formed at the seal member adjacent to the notch portion, and a wrinkled portion formed around the protruding tab to be bent when the notch portion is destroyed as the protruding tab is bent.

Also, to achieve the above objects, there is provided a can comprising a main body having a cavity for storing beverage, a seal member sectioned by an arc shaped notch portion formed on the upper surface of the main body, at least a pair of protruding tabs formed at the seal member, and a boundary notch portion formed between the protruding tabs.

Also, to achieve the above objects, there is provided a can comprising a main body having a cavity for storing beverage, a protruding tab disposed at the center of a circular beading portion formed on an upper surface of the main body, a central notch portion formed around the protruding tab, and a circular notch portion connected to the central notch portion and separated at a predetermined distance and having an opening on the upper surface of the main body.

Also, to achieve the above objects, there is provided a can comprising a main body having a cavity for storing beverage, a pressed tab formed by pressing a protruding portion formed by beading in a circular shape on the upper surface of the main body, and a circular notch portion connected to a central notch portion formed around the pressed tab and the central notch portion and forming an opening on the upper surface of the main body when being cut.

Brief Description of the Drawings

FIG. 1 is a partially cut-away perspective view showing a conventional can;

FIG. 2 is a perspective view showing a can according to a first preferred
5 embodiment of the present invention;

FIG. 3 is a sectional view taken along lines A-A of FIG. 2;

FIGS. 4A through 4D are sectional views showing the states in which
the thimble portion and the wrinkled portion are bent and the seal member is
separated from the main body in a can according to a first preferred
10 embodiment of the present invention;

FIG. 5 is a sectional view showing the operation of the beverage flow
guiding portion in the can according to the first preferred embodiment of the
present invention;

FIG. 6 is a plan view showing a can according to a second preferred
15 embodiment of the present invention;

FIG. 7 is a sectional view taken along lines B-B of FIG. 6;

FIG. 8 is a plan view showing a can according to a third preferred
embodiment of the present invention;

FIG. 9 is a sectional view taken along lines C-C of FIG. 8;

FIG. 10 is a plan view showing a can according to a fourth preferred
20 embodiment of the present invention;

FIG. 11 is a perspective view showing the state in which the can
according to the fourth preferred embodiment of the present invention is in
use;

FIG. 12 is a plan view showing a can according to a fifth preferred
25 embodiment of the present invention; and

FIG. 13 is a sectional view taken along lines D-D of FIG. 12.

Best mode for carrying out the Invention

30 FIG. 2 is a perspective view showing a can according to a first preferred
embodiment of the present invention. FIG. 3 is a sectional view taken along

lines A-A of FIG. 2.

As shown in the drawings, a can 20 includes a main body 22 having a cavity 21 inside and a seal member 30 having a plurality of arc shaped or circular notch portions 24 formed and sectioned on the upper surface 23 of the main body 22. First and second inclined portions 32 and 33 are formed with respect to a support wrinkled portion 31 on the seal member 30. A skirt portion 25 is formed between the upper portion 23 of the main body 22 and the first and second inclined portions 32 and 33 of the seal member 30. A thimble portion 34 is vertically formed at the central portion of the support wrinkled portion 31 on the seal member 30. A wrinkled portion 35 having a wave shape is formed at the second inclined portion 33 so that the second inclined portion 33 of the seal member is bent in a wave shape as the notch portion 24 is destroyed during the banding of the thimble portion 34. Here, the thimble portion 34 and the wrinkled portion 35 are formed by beading-processing the seal member 30. An initial destruction portion 36 is formed at the thimble portion 34 near the notch portion 24 so that the notch portion is partially and initially destroyed when the thimble portion 34 is bent. The initial destruction portion 36 is formed by sharply protruding from the thimble portion 34 to the notch portion 24. The notch portion 24 near the initial destruction portion 36 is preferably formed to be deeper than the depth of the notch portion therearound. The upper surface 23 of the main body and the notch portion 24 is preferably formed to be inclined by a predetermined angle toward the wrinkled portion 35.

A beverage flow guiding portion 26 is formed to protrude by being beading-processing the upper surface of the main body 22 around the notch portion of the upper surface 23 of the main body. The shape of the beverage flow guiding portion is not limited to the above embodiment and can be modified into various shapes. Also, in the above embodiment, the size of the seal member which is formed on the upper surface of the main body by being sectioned by the notch portion can be arbitrarily adjusted in an area of the upper surface of the main body.

The operation of the can 20 according to the present invention having the above structure will now be described as follows.

First, to drink the beverage stored in the cavity 21, a finger is inserted in the thimble portion 34 and a force is applied toward the wrinkled portion 35. As shown in FIGS. 4A through 4D, a bending moment is applied to the thimble portion 34 with respect to the support wrinkled portion 31 and this the thimble portion 34 pivots toward the wrinkled portion 35. Thus, part of the notch portion 24 is slightly open by the initial destruction portion 36 formed at the thimble portion 34. When force is applied more to the thimble portion 34 in this state, the notch portion 24 is continuously cut and the cavity 21 is disclosed and the wrinkled portion 35 is bent. Here, since the wrinkled portion 35 is formed at the second inclined portion of the seal member 30, bending the wrinkled portion 35 can be smoothly performed with a small force.

When the cavity 21 of the main body 22 is open and the can 20 is inclined to pour the beverage from the can, since the beverage flow guiding portion 26 is formed around the open inlet, the beverage stored in the can flows not touching the outside corner of the main body 22, as shown in FIG. 5.

FIG. 6 is a plan view showing a can according to a second preferred embodiment of the present invention. FIG. 7 is a sectional view taken along lines B-B of FIG. 6.

As shown in the drawings, the can includes a seal member 40 sectioned by the arc shaped or circular notch portion 24 formed on the upper surface 23 of the main body 22, a protruding tab 41 formed at the seal member 40 adjacent to the notch portion 24, and a wrinkled portion 42 formed around the protruding tab 41 to be cut according to the notch portion which is cut by pivoting of the protruding tab 41. The protruding tab 41 and the wrinkled portion 42 are integrally formed with the seal member 40 by beading-processing the seal member 40. An initial destruction portion 43 for initially guiding the destruction of the notch portion when the protruding tab 41 pivots is formed at the protruding tab 41. A beverage flow guiding portion 44 is

formed around the notch portion 24 on the upper surface of the main body. Since the structures of the initial destruction portion 43 and the beverage flow guiding portion 44 are the same as those in the above embodiment, the description thereof will be omitted.

5 When the protruding tab 41 is pushed toward the wrinkled portion 42 in the can having the above structure, the notch portion is initially cut by the integrally formed initial destruction portion 43. In this state, when an external force is further applied to the protruding portion 41 toward the wrinkled portion 42, the wrinkled portion 42 is bent and the cavity is disclosed, so that a user
10 can drink the beverage stored in the cavity.

FIG. 8 is a plan view showing a can according to a third preferred embodiment of the present invention. FIG. 9 is a sectional view taken along lines C-C of FIG. 8.

As shown in the drawings, the can includes at least a pair of protruding
15 tabs 51 and 52 at a seal member 50 sectioned by the arc shaped or circular notch portion 24 formed on the upper surface 23 of the main body 22, and a boundary notch portion 24a is formed between the protruding tabs 51 and 52. An initial destruction portion 53 for initially destroying and cut the boundary notch portion when the protruding tabs 51 and 52 are bent is further provided
20 at the sides of the protruding tabs 51 and 52 facing each other.

In the can having the above structure, when the protruding tabs 51 and 52 are strongly pressed by the fingers of a user toward each other, the protruding tabs 51 and 52 fell in directions facing each other and the boundary notch portion 24a is destroyed. Thus, the cavity 21 of the main body is
25 disclosed so that the user can drink the beverage stored in the cavity.

FIG. 10 is a plan view showing a can according to a fourth preferred embodiment of the present invention. FIG. 11 is a perspective view showing the state in which the cavity is open.

As shown in the drawings, a circular beading portion 61 is formed on
30 the upper surface of the main body 22 having the cavity 21 in which beverage are stored. At least one protruding tab 62 sectioned by a central notch portion

24b is formed at the central portion of the beading portion 61. A circular notch portion 24c connected to the central notch portion 24b and separated a predetermined distance so as to form an opening when the notch portion on the upper surface of the main body is cut, is formed. An initial destruction
5 portion 63 is further provided at the protruding tab 62.

In the can having the above structure, the central notch portion 24b is cut by pushing the protruding tab to one side and the circular notch portion 24c is cut by pulling the cut protruding tab 62. Here, since the circular notch portion 24c forms a closed circuit having an opening, when the circular notch
10 portion 24c is cut, the upper surface of the main body 22 is partially cut. In this state, the cavity is open by pushing the cut upper surface toward the cavity of the main body.

FIG. 12 is a plan view showing a can according to a fifth preferred embodiment of the present invention.

15 As shown in the drawing, a pressed tab 71, of which the upper surface is formed by a circularly beading and pressing method, is formed on the upper surface of the main body 22 having the cavity 21 where beverage are contained. The pressed tab 71 preferably has an extension portion 72 extended a predetermined length from a base portion of the main body. A
20 central notch portion 24d is formed around a base portion of the pressed tab on the upper surface of the main body. A circular notch portion 24e connected to the central notch portion and forming an opening by being cut is formed on the upper surface of the main body. The pressed tab 71 is further provided with an initial destruction portion 72.

25 In the can having the above structure, the pressed tab 71 pivots to cut the central notch portion 24d. As the central notch portion 24d is cut, the separated pressed tab 71 is pulled to cut the circular notch portion 24e. Here, since the circular notch portion 24e forms a closed circuit having an opening, when the circular notch portion 24e is cut, part of the upper surface of the
30 main body 22 is cut. In this state, the cavity is open by pushing the cut upper surface toward the cavity of the main body.

Industrial Applicability

The cans according to the above preferred embodiments have the following advantages.

First, since the thimble portion, the protruding tab, or the pressed tab
5 is formed on the upper surface of the main body and these pivot by a small force, the notch portion is destroyed and the wrinkled portion formed at the seal member is bent so that the cavity is open.

Second, since the thimble portion protects the finger of a user, the damage to the finger nails generated when the user pivots the tab can be
10 prevented.

Third, since the opening of the cavity can be formed to be large, the flow of beverage in the cavity is smooth. Also, since the beverage flow guiding portion is formed around the opening, the beverage do not touch the corner of the main body so that a sanitary state can be maintained.

15 Fourth, since a small ring (a tab opener) formed on the upper surface of the main body to open the cavity of the can is not needed, the structure of the can is simple and productivity in manufacturing can be improved.

It is noted that the present invention is not limited to the preferred embodiment described above, and it is apparent that variations and
20 modifications by those skilled in the art can be effected within the spirit and scope of the present invention defined in the appended claims.

What is claimed is:

1. A can comprising:
a main body having an inside cavity;
a seal member sectioned by an arc shaped notch portion formed on an
5 upper surface of the main body;
a thimble portion formed at the seal member adjacent to the notch
portion; and
a wrinkled portion formed at the seal member to be bent in a wave
shape when the notch portion of the main body is destroyed.
10
2. The can of claim 1, further comprising an initial destruction
portion formed near the thimble portion for initially destroying the notch portion
when the thimble portion is bent.
- 15 3. The can of claim 1, wherein the initial destruction portion is
formed by making the outer circumferential surface of the thimble portion
sharply bent toward the notch portion at the boundary portion between the
thimble portion and the seal member.
- 20 4. The can of claim 3, wherein the notch portion adjacent to the
initial destruction portion is formed to be deeper than the nearby notch portion.
5. The can of claim 1, further comprising a support wrinkled portion
formed by stepping the seal member around the thimble portion.
25
6. The can of claim 1, wherein a beverage flow guiding portion is
formed on the upper surface of the main body adjacent to the notch portion.
7. A can comprising:
30 a main body having a predetermined cavity for storing beverage;
a seal member sectioned by an arch shaped notch portion formed on

an upper surface of the main body and having first and second inclined portions with respect to a support wrinkled portion formed with a step;

a thimble portion formed at the seal member such that the support wrinkled portion adjacent to the notch portion can be vertically disposed at a central portion thereof;

a wrinkled portion formed at the second inclined portion and bent in a wave shape when the notch portion is destroyed; and

an initial destruction portion formed at a portion adjacent to the thimble portion and the notch portion for initially destroying the notch portion when the thimble portion is bent.

8. The can of claim 7, wherein a skirt portion is formed between an edge of the first and second inclined portions and the main body.

9. The can of claim 7, wherein a beverage flow guiding portion is formed around the notch portion on the upper surface of the main body

10. A can comprising:

a main body having a cavity for storing beverage;

a seal member sectioned by an arc shaped notch portion formed on an upper surface of the main body;

a protruding tab formed at the seal member adjacent to the notch portion; and

a wrinkled portion formed around the protruding tab to be bent when the notch portion is destroyed as the protruding tab is bent.

11. The can of claim 10, further comprising an initial destruction portion formed to extend from the protruding tab toward the notch portion for destroying the notch portion when the protruding tab is bent.

12. The can of claim 10, further comprising a beverage flow guiding

portion on the upper surface around the notch portion.

13. A can comprising:

a main body having a cavity for storing beverage;

5 a seal member sectioned by an arc shaped notch portion formed on the upper surface of the main body;

at least a pair of protruding tabs formed at the seal member; and

a boundary notch portion formed between the protruding tabs.

10 14. The can of claim 13, further comprising an initial destruction portion formed to extend from each of the protruding tabs toward the boundary notch portion for destroying the boundary notch portion when the protruding tabs are bent.

15 15. A can comprising:

a main body having a cavity for storing beverage;

a protruding tab disposed at the center of a circular beading portion formed on an upper surface of the main body;

a central notch portion formed around the protruding tab; and

20 a circular notch portion connected to the central notch portion and separated at a predetermined distance and having an opening on the upper surface of the main body.

16. The can of claim 15, further comprising an initial destruction
25 portion formed to extend from the protruding tab toward the boundary notch portion for destroying the central notch portion when the protruding tab is bent.

17. A can comprising:

a main body having a cavity for storing beverage;

30 a pressed tab formed by pressing a protruding portion formed by beading in a circular shape on the upper surface of the main body; and

a circular notch portion connected to a central notch portion formed around the pressed tab and the central notch portion and forming an opening on the upper surface of the main body when being cut.

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